

## PATENT ABSTRACTS OF JAPAN

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(71)Applicant : INOUE JAPAX RES INC

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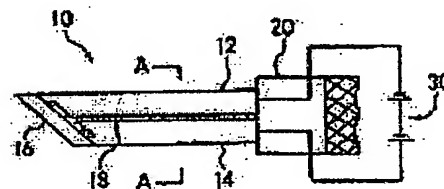
(72)Inventor : INOUE KIYOSHI

## (54) CERAMIC KNIFE

## (57)Abstract:

PURPOSE: To exhibit characteristics according to various kinds of objects and cut parts by forming the back part of a knife of a first electrode plate, forming the web part of a second electrode plate, forming a head part of conductive ceramics, and arranging an insulator in a gap so as to cause a current to flow from the first electrode plate through the ceramics to the second electrode plate.

CONSTITUTION: The back part of a ceramic knife 10 is formed of a first electrode plate 12, the web part of the knife is formed of a second electrode plate 14, and the tip part of the knife is formed of conductive ceramics 16 to be generated heat by the current. An insulator 18 is arranged in the gap so as to cause the current to flow from the first electrode plate 12 through the ceramics 16 to the second electrode plate 14, and the whole shape of the knife is composed. When the current from a power source 30 is made to flow through a handle part 20 of the knife inside between the first electrode plate 12 and second electrode plate 14, the ceramics 16 generates heat, the object is melted by heating, and a cutting work is exhibited. As the conductive ceramics, for example, the ceramics, in which TiN, TiC, SiC, B<sub>4</sub>C, TiB<sub>2</sub>, etc., are added to ZrO<sub>2</sub>, are used.



## LEGAL STATUS

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TITLE: Ceramic knife used in surgical  
operations - comprises  
back part made of 1st electrode  
plate, body part made of  
2nd electrode plate and tip made of  
conductive ceramic  
material, etc.

PATENT-ASSIGNEE: INOUE JAPAX RES INC[INOZ]

PRIORITY-DATA: 1988JP-0115997 (May 14, 1988)

PATENT-FAMILY:

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INT-CL (IPC): A61B017/32, B26B003/00 , B26B009/00

ABSTRACTED-PUB-NO: JP 01288291A

BASIC-ABSTRACT:

Ceramic knife comprises a back part made of a 1st electrode plate, a body part made of a 2nd electrode plate, a tip made of a conductive ceramic material, e.g., ZrO<sub>2</sub>-TiB<sub>2</sub> (30 wt.%) mixt., etc., and an insulator set

in the aperture  
between the 1st and 2nd electrodes. A pulsating electric  
current is applied  
between the 1st and 2nd electrodes to allow the electric  
current to flow from  
the 1st electrode to the 2nd electrode, to heat up the  
conductive ceramic  
material.

USE/ADVANTAGE - Used in a surgical operation, etc. It has a  
simple structure  
and has good cutting function in a varying pattern.

CHOSEN-DRAWING: Dwg.0/3

TITLE-TERMS: CERAMIC KNIFE SURGICAL OPERATE COMPRISE BACK  
PART MADE ELECTRODE

PLATE BODY PART MADE ELECTRODE PLATE TIP MADE  
CONDUCTING CERAMIC  
MATERIAL

DERWENT-CLASS: L02 P31 P62

CPI-CODES: L02-G07; L03-H04A;

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